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ABSTRACT

A study examined system design factors and communication norms which combined to affect perceptions of televised instruction. Subjects, 206 proximate and 73 distant students enrolled in communication courses, received the same instruction in two mode: (face-to-face and at a distance) and their perceptions were compared. The four instructors were trained how to use the two way audio/one way video multicamera equipment and how to engage in verbally and non-verbally immediate and socially present behaviors. Results indicated no significant differences in the two groups' perceptions of the same instructional events when delivered by trained instructors. Findings suggest that when the system of conveyance allows interactivity and control, and when instructors are immediate and present, students learn more and are more satisfied with the experience, regardless of the modality. (Contains 15 references and 2 tables of data). (RS)

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Perceptions of Proximate and Distant Learners Enrolled in University-Level Communication Courses: A Significant Nonsignificant Finding

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Perceptions of Proximate and Distant Learners Enrolled in University-Level Communication Courses: A Significant Nonsignificant Finding

In the information age, telecommunications is replacing face-to-face contact at an accelerating rate. Much of the adoption of new technologies is based on assumptions among users that mediated communication is as effective as communication in physically proximate contexts. This study examined system design factors and communication norms which combined to effect perceptions of televised instruction. Participants receiving the same instruction in two modes: face-to-face and at a distance, were compared. No significant differences were discovered in the two groups' perceptions of the same instructional events, delivered by trained instructors.

Recent technological advances, as well as changes in demographics among student populations, have made television an increasingly viable medium for the delivery of university curriculum (Arnall, 1984). Lipsky (1984) predicts that 80% of all off-campus instruction will be delivered through new information technologies by the year 2000. The efficacy of coursework offered through such technologies remains to be determined.

A number of research studies have compared traditional face-to-face instruction with televised instruction to argue issues of exchangeability or superiority. Whittington (1987) reviewed over 100 such studies and found that students in a variety of televised courses, ranging from pre-packaged video courses to fully interactive two-way audio/two-way video classrooms, received similar grades. Grades, however, are not an entirely accurate measure of comparability. Student

grades are confounded by a number of extraneous variables including student attendance, oral and written communication skills, attitudes, work habits and preparation.

Much of the research on distant learning assumes televised delivery enjoys some inherent primacy over face-to-face instruction (Shavelson, Stasz, Schlossman, Webb, Hotta & Goldstein, 1986). Few studies have isolated structural differences in proximate and distant modes or specific functions where face-to-face or televised modes enjoy significant advantages for delivering education. In fact, few studies have investigated conditions where telecommunication may be more or less effective.

Television has become largely accepted as an effective mode of delivery, but more recent studies have shown this effectiveness to be dependent upon a range of instructional design, production quality, and environmental conditions. Studies have concluded that the more effective tele-educational systems are those with the greatest interactivity, immediacy, and user control, used to convey highly instrumental information to motivated students (Hough, 1984; Kozma, 1986; Walker & Hackman, 1992b).

Additionally, tele-education research has focused on whether students perceive communication norms of face-to-face exchange to be present in the context of televised delivery. Factors such as the perceived ability to initiate question and answer, to participate in classroom discussion, and to

feel rapport with class peers seem to be important in student's development of face-to-face norms (Rice, 1984; Williams, 1977). The conclusions of this body of research suggest that a reason for resisting tele-education may be the perceived lack of communication norms of proximate face-to-face exchange in the mediated context.

Researchers focusing on the comparability of proximate and distant learning have struggled in their attempts to define tele-education and to distinguish various properties of the media, user control, and interactivity (Keegan, 1988). Walker and Hackman (1992a) argue for a needs and gratification approach to the evaluation of tele-education. This approach suggests that comparability be assessed by focussing on learners perceptions of content utility, and conveyance. Williams (1977) compared mediated modes of delivering meetings (i.e. one-way versus two-way, audio only versus audio-visual) for differences in communicating information. Differences were found among participants using different media for different functions, refuting the conclusion of Whittington (1987) that there were no intrinsic differences in technological devices for transmitting face-to-face communication. Similarly, Wagner and Craft (1988) surveyed whether students felt comfortable using telephones for the live interactive component of their televised instruction. They found some students rated their comfort level significantly more favorably than others. This body of

evidence suggests that deleterious or dysfunctional effects such as discomfort and feelings of frustration might result from tele-educational efforts.

The present study sought to identify perceptions of the educational experience among proximate and distant learners enrolled in communication courses taught via a two-way audio/one way video configuration. Walker and Hackman (1992b) suggested the following factors are related to perceptions of student learning and satisfaction in the televised course: information transfer, verbal and non-verbal immediacy, social presence, and clear audio and video transmission. The strongest predictor of learning and satisfaction among distant students was the amount of information received. Information transfer contributed to 47% of the variance in student satisfaction and 54% of variation in overall course ratings.

Results of these studies suggested that certain students would sacrifice the norms of face-to-face communication present in traditional classrooms for the necessity and convenience of telecommunicated information. It was speculated that students might be willing to trade off their socio-emotional needs for the currency of telecourse information. Furthermore, the results indicated that non-verbal immediacy impacted learning and satisfaction and was a meaningful predictor of student desire to take another course from the same instructor. It was possible for non-verbal immediacy to be communicated across television through certain gestures, postures and vocal variety, and for these

behaviors to contribute to a para-social affinity for the instructor.

Based on these findings it was concluded that participants were able to approximate the same teacher/student communication via technology as that achieved face-to-face. Following up on these results, the present study sought to examine if these elements function the same way when mediated as they do face-to-face by comparing the perceptions of students at a distance with those in the proximate classroom.

METHOD

Subjects

Two-hundred and six proximate and 73 distant students enrolled in communication courses served as subjects. Respondents were students in one of four communication courses (Interpersonal Communication, Leadership Communication, Male/Female Communication, and Organizational Communication) taught by four different instructors (2 male/2 female) via a two way audio/one-way video multicamera, candid classroom configuration. Instructors presented graphics by writing on a pad or placing prepared materials under an overhead camera. Push-to-talk microphones enabled students off campus to hear the comments and questions of those students in the physically proximate classroom. Standard phone lines were used to relay comments and questions from student off campus into the classroom. Each of the instructors was trained in how to use the medium and how to engage in verbally and non-verbally immediate and socially

present behaviors.

Data were collected during class time and 100% of those both in proximate attendance and viewing at a distance submitted questionnaires. Three questionnaires were incomplete, however, and were not included in the analysis.

Materials

The questionnaire administered contained six measures assessing perceived student learning, perceived student satisfaction, social presence, information transfer, verbal teacher immediacy, and nonverbal teacher immediacy (Gorham, 1988). Each of the scales had been used previously by Walker and Hackman (1992b). Alpha reliabilities for the scales ranged from .74 to .81.

RESULTS AND DISCUSSION

A series of one-way ANOVAs was run to determine if differences existed between the perceptions of distant and proximate students. Results suggested there were no significant differences on any of the variables. See Table 1.

Insert Table 1 about here

On the dimension of verbal immediacy a trend was noted. The difference between distant and proximate students' perceptions of verbal immediacy was $p < .068$. As such, a series of t-tests were performed comparing distant and proximate students' perceptions on each item of the verbal immediacy scale. Significant differences were noted on five of the twenty verbal immediacy items. See Table 2.

Insert Table 2 about here

Significant results were discovered in the following areas:

-the address of students by name

-instructors use of students' first name

-conversations before and after class

-probing student feelings about an assignment or discussion topic

-the instructors use of humor.

Four of the five differences were interpreted to be among the communication norms of the proximate classroom that were difficult or less convenient to duplicate with the distant student. The ability of participants to address one another by name, to engage in side conversation, and to participate in spontaneous and probing discussion seemed affected by the medium herein. Although this may be a "perceived" limit of this medium, it is acknowledged that such limitations would be real in their consequences.

The fifth difference was an unanticipated finding of the instructors' use of humor as more appreciated by those watching on television, than the same humor expressed face-to-face. Holmberg, Schuemer and Obermeir (1982), suggest that the more conversation-like the interaction is, the more effective the mediated instructional experience is likely to be. Thus, the student at a distance may be more attendant and responsive to humor in an attempt to replicate conversation-like interaction.

Because our study sought differences between the two modalities of delivery, the results of this investigation have both practical and theoretical consequences for the distance learning model. First, students appear capable of learning via telecommunications when certain requisite conditions of the content and conveyance are met. Once the technology has been established as capable of interactivity, participants must be trained to use immediate and socially present behaviors. When instructors engage in such behaviors, the results of this study suggest, perceptions of learning, satisfaction, information transfer and immediate and present instructor behavior are not different in the two modalities.

The participants must convey verbal and nonverbal immediacy and the system must enable immediate feedback and spontaneity. Those who are more socially present will convey more information; they will be perceived as more immediate and will thus be more effective. Instructors need to focus instruction on cognitive

objectives, share those objectives with students in a deliberate and well-paced fashion, and facilitate all communication norms of the physically proximate setting. This includes calling on students at a distance by name, inviting and recognizing their participation, and disclosing personal data. Instructors should be relaxed and expressive, and use vocal variety whenever possible (Hackman & Walker, 1990).

These behaviors will serve well the instructor in proximate or distant modalities. This research suggests that instructors who demonstrate immediate behaviors should not be adversely affected by teaching via television. If viable delivery systems are developed for extending the traditional classroom, participants will experience acceptable levels of social presence and immediacy. All other elements of the instructional event being equal, and with information as the preeminent factor in learning and satisfaction, potential users of telecommunication appear to have one less reason for resistance.

When the system of conveyance allows interactivity and control, and when instructors are immediate and present, students learn more and are more satisfied with the experience regardless of the modality. As systems enable information transfer, and as instructors are trained to be immediate, students will sacrifice the interpersonal contact the modes can be predicted as nearly identical. Tested empirically in this investigation, the instruction via telecommunications was both comparable and exchangeable for that face-to-face.

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TABLE 1

ANOVA SUMMARY TABLE

ON VERSUS OFF CAMPUS STUDENTS

	On campus		Off campus			
	Mean	S.D.	Mean	S.D.	F	p
Learning	6.26	1.55	6.13	1.71	.33	n.s.
Satisfaction	14.97	3.74	14.97	4.29	.00	n.s.
Social Presence	16.15	2.71	16.17	2.52	.00	n.s.
Information Transfer	4.08	.91	3.93	1.15	1.36	n.s.
Verbal Immediacy	48.70	6.07	47.00	7.02	3.38	<.068
Nonverbal Immediacy	35.57	4.39	35.24	5.25	.25	n.s.

Table 2

T-TEST SUMMARY TABLE

SIGNIFICANT DIFFERENCES IN PERCEPTIONS OF VERBAL IMMEDIACY: ON VERSUS OFF CAMPUS

	On campus		Off campus			
	Mean	S.D.	Mean	S.D.	t	p
The instructor used humor in class	3.05	.69	3.26	.73	2.25	<.05
The instructor addressed students by name	2.93	.92	2.67	1.13	1.98	<.05
The instructor got into conversations with students before or after class	3.17	.63	2.98	.74	2.04	<.05
The instructor asked students how they felt about an assignment, due date, or discussion topic	2.84	.74	2.58	.94	2.45	<.05
The instructor is addressed by his/her first name by the students	2.18	.89	1.63	.86	4.68	<.01